

Amendments to the Claims

This listing of claims replaces all prior versions and listings of claims in the application.

Listing of Claims

1. (currently amended) Proximity detector employing a capacitive sensor, comprising:

- at least one detection antenna comprising a plurality of capacitive proximity sensors that each includes only a single measurement electrode, said antenna movably approaching an object or a body,

- electronic means for exciting said measurement electrodes and for processing the signals originating from said capacitive sensors,

- digital means for controlling the electronic means and for calculating in real time, from the measurement signals thus processed, the absolute distances between said electrodes and said object or said body, ~~said digital means controlling the antenna to movably approach the object or the body,~~

wherein said electronic means comprise, for each said detection antenna, a floating capacitive bridge or with floating excitation, cooperating with polling means to measure sequentially the respective capacitances between each of said measurement electrodes of said antenna and the object or body to be measured, and

wherein said sensors have a range greater than 100 mm with
a resolution of the order of a millimeter.

2. (previously presented) Proximity detector according to claim 1, characterised in that the detection antenna also comprises at least one shield for all the measurement electrodes of the antenna.

3. (canceled)

4. (previously presented) Proximity detector according to Claim 1, characterised in that the electronic means and the digital control and calculation means cooperate to measure a distance successively on each electrode of an antenna according to a predetermined but changeable order.

5. (previously presented) Proximity detector employing a capacitive sensor, comprising:

at least one detection antenna comprising a plurality of capacitive proximity sensors, each comprising a measurement electrode and a shield, said antenna being placed close to an object or a body;

electronic means for exciting said measurement electrodes and for processing the signals originating from said capacitive sensors;

digital means for controlling the electronic means and for calculating, from the measurement signals thus processed, the distances between said electrodes and said object or said body;

said electronic means comprising, for each detection antenna, a floating capacitive bridge or with floating excitation, cooperating with polling means to measure sequentially the respective capacitances between each electrode of said antenna and the object or body to be measured,

wherein at least one of the detection antennas comprises a test track which, in normal operation, is at the potential of the shield and, in test mode, is earthed.

6. (original) Proximity detector according to claim 5, characterised in that the test track is placed to the rear of or close to the electrodes.

7. (previously presented) Proximity detector according to Claim 1, characterised in that the electronic means and the digital control and calculation means cooperate to deliver an alarm signal indicating an inconsistent measurement or a malfunction of the digital control and calculation means.

8. (previously presented) Proximity detector according to Claim 1, characterised in that the electronic means also comprise one or more reference capacitances provided to check the calibration of said electronic means or to recalibrate said electronic means.

9. (previously presented) Proximity detector according to Claim 1, characterised in that one antenna also comprises, close to the measurement electrodes, one or more shield or earthing

surfaces which are arranged to modify the field lines of the measurement electrodes.

10. (previously presented) Proximity detector according to Claim 1, wherein the proximity detector is arranged on the inside or outside surface of a cap or box and comprises a plurality of measurement areas equipped with detection antennas.

11. (previously presented) Proximity detector according to Claim 1, characterised in that the electronic means and the digital control and calculation means cooperate to deliver proximity detection threshold signals.

12. (previously presented) Proximity detector according to Claim 10, characterised in that the electronic means and the digital control and calculation means cooperate to deliver analogue output signals of the objects detected.

13. (previously presented) Proximity detector according to Claim 10, characterised in that the antennas are arranged on five faces of the box or cap.

14. (previously presented) Proximity detector according to Claim 10, wherein the proximity detector comprises edge antennas arranged in part over one face of said cap, and in part over another contiguous face, and lateral antennas.

15. (previously presented) Proximity detector according to Claim 1, characterised in that at least one of the antennas is produced using a flexible circuit.

16. (previously presented) Proximity detector according to Claim 1, characterised in that at least one of the antennas is connected to the electronic means by flexible connecting means.

17. (previously presented) Proximity detector according to Claim 1, used in a piece of radiology equipment employing X-rays, comprising a device for emitting an X-ray beam intended to irradiate an object or a body and a device for detecting the X-rays originating from said object or body, this X-ray detector device being covered by a cap, wherein the proximity detector is arranged on the inside or outside surface of said cap.

18. (canceled)

19. (previously presented) Proximity detector employing a capacitive sensor, comprising:

at least one detection antenna comprising a plurality of capacitive proximity sensors, each comprising a measurement electrode, said antenna being placed close to an object or body to be measured;

electronic means for exciting said measurement electrodes and for processing signals originating from said capacitive sensors;

digital means for controlling said electronic means and for calculating, from measurement signals thus processed, distances between said electrodes and the object or body;

wherein said electronic means comprise, for each detection antenna, a floating capacitive bridge or with floating

excitation, cooperating with polling means to measure sequentially the respective capacitances between each said electrode of said antenna and the object or body

wherein the proximity detector is used in a piece of radiology equipment employing X-rays and comprising a device for emitting an X-ray beam intended to irradiate the object or body and a device for detecting the X-rays originating from the object or body, said detector device being covered by a cap, the proximity detector being arranged on the inside or outside surface of said cap,

wherein said detection antenna comprises a flexible printed circuit composed of an insulator metallised on both faces with a thin layer of chromium then by a layer of copper, said copper layer being removed over an area which corresponds to a passage for the X-ray beam and in which linking tracks and the capacitive proximity sensors are produced from the chromium layer.

20. (previously presented) Proximity detector according to Claim 1, fitted in a piece of radiology equipment employing X-rays, comprising a device for emitting an X-ray beam intended to irradiate an object or a body, wherein the detector is arranged on the inside or outside surface of said emitter device.

21-30. (canceled)